

What is claimed is:

1. A contact detecting device comprising:

a flexible piezoelectric sensor of a cable shape; and

5 a resilient member for holding the piezoelectric sensor therein, the resilient member including a hollow portion, which has a free end to allow the hollow portion to be opened, and a sensor holding portion for mounting therein the piezoelectric sensor by way of opening the hollow  
10 portion,

wherein the hollow portion is provided with a support for maintaining a hollow state thereof.

2. The contact detecting device of claim 1, wherein the  
15 support has a straight rib shape formed as a single body with the resilient member and is provided between the sensor holding portion and an inner base member of the hollow portion along a pressure sensing direction of the piezoelectric sensor.

20 3. The contact detecting device of claim 1, wherein the support has a straight rib shape formed as a single body with the resilient member and is provided between the sensor holding portion and an inner base member of the hollow  
25 portion to be inclined to a pressure sensing direction of the piezoelectric sensor.

4. The contact detecting device of claim 1, wherein the support is a rib having a zigzagged shape formed as a single body with the resilient member and is provided between the sensor holding portion and an inner base member of the hollow portion.

5. The contact detecting device of claim 1, wherein the support is a rib of a curved shape formed as a single body with the resilient member and is provided between the sensor holding portion and an inner base member of the hollow portion.

6. The contact detecting device of any one of claims 2 to 5, wherein the support is formed of divided parts.

7. The contact detecting device of claim 1, wherein the support is an elastic body filled in the hollow portion.

8. A contact detecting device comprising:  
a flexible piezoelectric sensor of a cable shape;  
a resilient member for holding the piezoelectric sensor, the resilient member including a hollow portion having a free end to allow the hollow portion to be opened;  
a support for maintaining a hollow state of the hollow portion, the support being formed of an elastic body and filled in the hollow portion; and

a sensor holding portion, provided in the support, for mounting therein the piezoelectric sensor.

9. The contact detecting device of claim 1 or 8, wherein  
5 the resilient member is mounted to a mounting base such that the free end is located at a bottom part of the resilient member.

10. The contact detecting device of claim 1 or 8, wherein  
10 the free end is attached to a part of the resilient member by using an adhesive while the piezoelectric sensor is held in the sensor holding portion.

11. The contact detecting device of claim 1 or 8, further  
15 comprising a coupling means for allowing the free end to be attached to and detached from a part of the resilient member while the piezoelectric sensor is held in the sensor holding portion.

20 12. The contact detecting device of claim 1 or 8, wherein the free end is a part of a mounting member that is fixed on a mounting base when mounting the resilient member thereon.

13. The contact detecting device of claim 10, wherein the  
25 resilient member is mounted on a mounting base by using an adhesive material.

14. The contact detecting device of claim 1 or 8, wherein  
the piezoelectric sensor is made of a composite  
piezoelectric substance obtained by mixing amorphous  
chlorinated polyethylene, crystalline chlorinated  
5 polyethylene and powder of piezoelectric ceramic.